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**BIRDS COLLECTED BY THE WEST GREENLAND EXPEDITION.**

BY WITMER STONE.

The collection of birds herein described was obtained June 26 to August 11, 1891, by the West Greenland Expedition under command of Prof. Angelo Heilprin. The specimens were collected by Dr. William E. Hughes, Ornithologist of the Expedition, and Dr. Benjamin Sharp, Zoologist-in-Charge, the principal localities where collecting was carried on being Disco Island, Duck Island (Lat.  $73^{\circ} 57' N.$ ), Melville Bay, Cape York, and McCormick Bay (Lat.  $77^{\circ} 43' N.$ ).

Twenty-one species are represented in the Greenland collection which numbers 147 specimens and there are in addition 16 specimens obtained at Sydney, Nova Scotia, Gulf of St. Lawrence and Strait of Belle Isle.

Most of the birds collected were in full breeding plumage and were undoubtedly on their breeding grounds. In the following list I have given the results of careful measurements of all the specimens, and notes in regard to peculiarities of plumage, etc.

**1. *Cepphus grylle* (L.).** Black Guillemot.

Only one specimen of this bird was procured, a male shot on the Waigat, Disco Island, August 8. The wing measures 6.50 inches and the culmen 1.44 inches.

**2. *Cepphus mandtii* (Licht)** Mandt's Guillemot.

Specimens of Mandt's Guillemot were collected in Melville and McCormick Bays and the series obtained shows considerable variation in plumage. One is uniform black while the others are somewhat speckled with white feathers below and have many of the feathers of the interscapular region tipped with white. The white wing coverts in these specimens have distinct black tips and some of them are slightly dusky at the extreme base. These mottled birds are possibly one or two years old and the uniform black garb may not be acquired for several years.

Three nestlings, measuring about six inches in length, are in the collection. They are covered with long and very soft dull black down. The bills have a small white conical projection near the extremity of the upper mandible.

The feet of the adults were bright red in life, while those of the young were black.

Three adult females measure as follows:<sup>1</sup>

Acad. Collec.	Length (in flesh.)	Wing.	Culmen.
No. 26,888	13.18 ins.	6.30 ins.	1.14 ins.
26,899	13.37	6.25	1.16
26,900	13.50	6.32	1.10

**3. *Uria lomvia* (Linn).** Brünnich's Murre.

Four immature specimens of this species taken in the Strait of Belle Isle, June 15, measure as follows:

Acad. Collec.	Length (in flesh.)	Wing.	Culmen.
No. 26,887	15.37 ins.	8.25 ins.	1.44 ins.
26,888	16.85	8.00	1.46
26,889	—	8.50	1.47
26,890	—	8.25	1.32

Two adult females in breeding plumage taken in Melville Bay, July 7 and 13 are as follows:

Acad. Collec.	Length (in flesh.)	Wing.	Culmen.
No. 26,891	16.75 ins.	8.35 ins.	1.40 ins.
26,892	15.37	7.90	1.38

**4. *Alle alle* (Linn).** Little Auk, Dovekie.

A series of forty-seven Little Auks is contained in the collection, most of which were shot off Cape York, July 22 and 23. The birds are all in full breeding plumage and show scarcely any variations in markings.

Measurements of forty specimens (19 males and 21 females) give the following results:

		Maximum.	Minimum.	Average of series.
Males.	Wing	4.84 ins.	4.35 ins.	4.66 ins.
	Culmen	.66	.55	.59
	Length (in flesh)	9.25	8.36	8.75
Females.	Wing	4.88	4.42	4.67
	Culmen	.61	.52	.56
	Length (in flesh)	9.20	8.25	8.56

**5. *Stercorarius pomarinus* (Temm.)** Pomarine Jaeger.

One specimen was shot on the Waigat, Disco, Aug. 7. The measurements are as follows: Wing 13.75 inches. Culmen 1.63 inches. Tail 6 inches.

**6. *Stercorarius parasiticus* (Linn).** Parasitic Jaeger.

This species was not noticed by the Expedition, but a dried skin was procured from the natives at Godhaven which seems referable

<sup>1</sup>All measurements of "length" were taken in the flesh by Dr. Hughes, to whom I am indebted for them. The other measurements were made from the dried skins, the length of culmen being from its extreme base to tip of upper mandible unless otherwise stated. All dimensions are in inches and hundredths.

to it. The bill is much heavier than any of the specimens of *S. longicaudus*, the plumage above is decidedly more sooty and the tarsi are entirely uniform in color with the feet. The two species are, however, very difficult to separate owing to the great amount of individual variation which they exhibit.

The specimen of *S. parasiticus* measures as follows: Wing 12.85 inches. Culmen 1.27 inches. Tail 8.05 inches.

**7. *Stercorarius longicaudus* Vieill. Long-tailed Jaeger.**

The specimens of Long-tailed Jaegers, all of which were collected July 16 in Melville Bay, show great variation in plumage and no two in the series of seven are exactly alike. All have the tarsi blue-gray strongly contrasted with the black feet, though the light color sometimes terminates above the small hind toe and sometimes extends below it to the upper part of the foot.

No. 26,909, (Acad. Coll.), female, appears to be most typical of the adult bird. The plumage in this specimen is nowhere barred or mottled; the throat and breast are pure white passing gradually into slate gray about the middle of the abdomen, and this color becomes darker on the under tail coverts. On the sides of the breast the gray reaches forward to the shoulders, while the under wing coverts are blackish slate. The back is slate gray, darker on the wings; the primaries and tail are black.

In No. 26,905, female, the gray reaches farther up on the breast and the central tail feathers are not so long.

In No. 26,904, female, (dusky phase?) the whole lower surface is suffused with sooty gray, though this color is not uniform, as there are a considerable number of white feathers scattered over the breast. The upper surface is mottled with slate-gray and dusky feathers. The under tail coverts and flanks are transversely barred with white but the under wing coverts are plain dark slate.

No. 26,903, female, shows distinct traces of dark transverse bars over the lower breast and abdomen, and has dark shaft lines to the feathers of the throat. Most of the under tail coverts are barred with white and the under wing coverts are barred and mottled.

No. 26,907, male, is similar but has the breast pure white while the barrings on the under wing and tail coverts, sides and flanks are very distinct. The throat is very strongly marked with dusky shaft stripes while many of the feathers of the back show transverse bars of white.

Other specimens are like the mature white-breasted birds but still have the under wing coverts and axillaries barred.

As none of the specimens above described were birds of the year it is reasonable to suppose that it takes at least two years for the species to acquire the full adult plumage. The great variety of coloration exhibited by these Jaegers makes it difficult to arrange them in any order which will show the steps in the transition from young to old. It seems to me most probable that the normal plumage of the bird of one year is shown by No. 26,907, while the young "bird of the year" doubtless shows still more barring, perhaps even on the breast. As this bird approaches the adult stage (i. e. No. 26,909) the barrings are gradually replaced by uniform slate gray.

The specimen No. 26,904 may, I think, represent a partial dusky phase as the suffusion of sooty feathers on the under surface is very decided, much more so than in any of the young birds, with which I at first placed it. The dusky feathers moreover, do not form transverse bands as in the young birds and the under wing coverts are uniform slate colored like those of the adults. The under tail coverts are, however, still barred with white.

If this really represents a dusky phase, it seems to be the first recorded instance of it in this species, though it occurs regularly in the closely related *S. parasiticus*.

If, however, we consider this as a young bird it would indicate that the adult plumage is assumed very differently by different individuals, as there is another specimen which has not a trace of dusky marks on the breast but which has the under wing coverts strongly barred.

The measurements of the specimens are as follows :

Acad. Collec.		Wing.	Culmen.	Tail.
No. 26,905	female	12.35 ins.	1.10 ins.	10.60 ins.
26,903	"	12.20	1.22	11.35
26,902	"	11.80	1.15	8.90
26,904	"	12.30	1.13	7.25
26,906	"	12.45	1.30	10.25
26,909	"	12.10	1.15	12.25
26,907	male	12.25	1.15	9.60

**8. *Gavia alba* (Gunn.) Ivory Gull.**

A series of eight males of this beautiful species was collected in Melville Bay, July 6 to 17. Some of the specimens, probably younger birds, have dusky tips to the primary coverts.

The measurements of the series give the following results:

	Maximum.	Minimum.	Average.
Length (in flesh)	20.36 ins.	18.25 ins.	19.36 ins.
Wing	13.40	12.70	13.06
Culmen	1.59	1.40	1.52

**9. *Bissa tridaactyla* (Linn).** Kittiwake.

Two specimens of Kittiwake were collected July 16, in Melville Bay, Lat. 75° 09' N. They measured as follows:

Acad. Collec.	Length (in flesh.)	Wing.	Culmen.
No. 26,922	16.75 ins.	12.10 ins.	1.35 ins.
26,923	17.00	11.75	1.39

**10. *Larus glaucus* Brunn.** Glaucous Gull.

One specimen shot at Disco Island.

**11. *Fulmarus glacialis* (Linn.)** Fulmar.

Eight Fulmars are in the collection, all obtained in Melville Bay, July 7 to 13. Five are in the white phase of plumage and three in the gray phase. They all seem to be typical *F. glacialis*, the measurements being as follows:

Acad. Collec.	Length (in flesh.)	Wing.	Culmen.
No. 26,929 white female	18.00 ins.	12.25 ins.	1.38 ins.
26,932 " "	—	12.70	1.36
26,931 white male	18.62	12.70	1.38
26,930 " "	18.50	12.60	1.40
26,924 " "	19.50	13.10	1.45
26,928 gray female	18.00	12.85	1.32
26,925 gray male	19.25	13.00	1.37
26,926 " "	19.00	13.20	1.44

**12. *Somateria mollissima borealis* Brehm.** Greenland Eider.

Five male Eider Ducks and an equal number of females were collected at Duck Island, Lat. 73° 57' N., July 2. They appear to be referable to *S. mollissima borealis* Brehm, but the measurements of the bill are rather different from those given in Ridgway's Manual. In the key to species on page 109 this race is placed in a division with the true *S. mollissima* headed "Distance from anterior point of loreal feathering to extremity of naked angle on side of forehead much greater than from same point to tip of upper mandible." In the present series, however, the reverse is the case or else the two measurements are about equal. As these specimens were taken in the upper part of Baffin Bay, they represent the extreme northwestern form of the *S. mollissima* stock and are farthest removed geographically from typical *S. mollissima*.

It is, therefore, not surprising that they should exhibit the greatest differences from the typical *S. mollissima* and it is probable that

specimens from farther south will be found to approach true *S. mollissima* in the dimensions of the bill as well as in other respects, in proportion as their breeding range approaches that of the latter race.

The measurements of the five breeding males are as follows :

Acad. Collec.	Length (in flesh.)	Wing.	Bill from posterior end of nostril.	Bill from anterior edge of loreal feathers.	Naked angle from anterior edge of loreal feathers.
No. 26,934	—	11·56 ins.	1·67 ins.	1·50 ins.	1·36 ins.
26,935	23·38 ins.	11·50	1·60	1·46	1·42
26,936	23·50	11·28	1·52	1·50	1·37
26,942	23·62	11·20	1·46	1·48	1·32
26,943	23·62	11·25	1·62	1·55	1·41

**13. *Somateria spectabilis* (Linn.) King Eider.**

Three specimens obtained in the vicinity of Disco, June 26 and 28, and August 7.

**14. *Phalaropus lobatus* (Linn.) Northern Phalarope.**

Three specimens were procured at Disco Island, June 28 and 29, and Aug. 11.

**15. *Tringa maritima* Brunn. Purple Sandpiper.**

One specimen was shot at Duck Island, July 2, and four more at Disco, August 9 to 11.

**16. *Aegialitis hiaticula* (Linn.) Ring Plover.**

Specimens were procured at Disco and Godhaven.

Measurements of some of the specimens are as follows :

Acad. Collec.			Wing.	Culmen.
No. 26,960	June 28.	Disco	4·50 ins.	·56 in.
26,958	Aug. 11.	"	4·52	·55
26,954	July 8.	"	5·06	·56
26,955	Aug. 11.	"	4·90	·54

**17. *Lagopus rupestris reinhardtii* (Brehm.) Greenland Ptarmigan.**

A female and three young nearly full grown were collected at Disco Island, July 8, and two adult males were obtained at the same place, August 7. All the specimens are in the summer plumage though one of the males shows a few white feathers on the upper breast.

**18. *Falco rusticolus gyrfalco* (Linn.) Gyrfalcon.**

One specimen obtained from the natives at Disco.

**19. *Plectrophenax nivalis* (Linn.) Snow Bunting.**

There is a series of twelve Snow Buntings in the collection, including breeding males and females, moulting specimens, and young in the first plumage. Two young birds were collected at McCormick Bay, July 29, an adult male at Upernavik, July 1 and the rest at Disco, June 28 and 29 and August 11.

The breeding birds show very distinctly the process of moulting by the wearing away of the brown tips of the feathers. All the feathers of the back are very much pointed in the middle and cut away or concave on the sides, all the rusty borders which characterize the winter specimens being worn off. Some specimens, however, show ragged remains of these borders on the coverts and tertials.

Two young birds of the year from McCormick Bay are strongly tinged with buff on the lower back and rump as well as on the under surface, while a young bird from Disco is much grayer.

Adult birds collected August 11 at Disco are all well advanced in their moult and the lower mandible is yellow instead of black as in the breeding bird. The brown edgings to the feathers are rich chocolate, very distinct from the faded buff brown of winter examples from Pennsylvania.

It is interesting to note that all but one of the adult birds collected at Disco, August 11, have the wing and tail feathers completely grown and have about half the other feathers replaced by the brown edged plumage, while birds of the year taken at the same time and place have the wing feathers only partly grown and have not begun to moult elsewhere. This fact may be of interest to students of bird migration as it shows that the old birds were at least ready for the southern journey before the young.

The measurements of the breeding birds are as follows:

Acad. Collec.				Wing.	Culmen	
No.	26,978	male	Disco	June 29	4.15 ins.	.51 in
	26,980	"	"	" 28	4.20	.49
	26,981	"	Upernavik	July 1	4.38	.50
	26,979	female	Disco	June 28	4.10	.48
	26,977	"	"	" 29	4.02	.48

**20. *Calcarius lapponicus* (Linn.) Lapland Longspur.**

A series of eight Longspurs was procured at Disco, June 28 and 29 and August 11. Those collected on the last date had advanced in their moult even farther than the Snow Buntings. The adults were in complete winter garb with the exception of the tail feathers some of which were not quite fully grown.



The bills of the breeding males are bright yellow tipped with black. The measurements of three male specimens procured at Disco, July 28 and 29 are as follows:

Acad. Collec.	Wing.	Culmen.
No. 26,970	3.75 ins.	.51 in.
26,971	3.70	.51
26,972	3.78	.51

**21. *Saxicola oenanthe* (Linn.) Wheatear.**

One male bird procured at Disco, Aug. 11, has just completed its moult. The wing measures 4.18 inches and the culmen .53.

The species obtained before the expedition reached Greenland were as follows:

At Sydney, Nova Scotia, *Empidonax flaviventris* Baird., *Corvus americanus* Aud., *Ammodramus sandwichensis savanna* (Wils.), *Melospiza fasciata* (Gm.), *Melospiza georgiana* (Lath.), *Chelidon erythrogaster* (Bodd.), *Setophaga ruticilla* (Linn) and *Merula migratoria* (Linn).

In the Gulf of St. Lawrence the following species came on board the vessel: *Pinicola enucleator* (Linn), and *Dendroica virens* (Gm.).

There were also several specimens of *Uria lomvia* (Linn.), secured in the Strait of Belle Isle.